



METROPOLITAN
TRANSPORTATION
COMMISSION

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ARTERIAL OPERATIONS COMMITTEE (AOC)

10 A.M. – 12 P.M., Tue., Sept. 13, 2011

Joseph P. Bort MetroCenter

Conference Room 171

101 Eighth Street

Oakland CA 94607-4700

Chair: Dean Hsiao, San Leandro

Vice-Chairs: David Kobayashi, VTA

David Mahama, DKS

Staff Liaisons: Vamsi Tabjulu, MTC

Danielle Stanislaus, MTC

The Arterial Operations Committee (AOC) oversees the Bay Area's efforts to improve arterial efficiency and safety. This Committee membership is open to traffic engineers in public and private agencies in the Bay Area. For more information and to download the meeting agenda packets, please visit http://www.mtc.ca.gov/services/arterial_operations/.

AGENDA

1. Introductions (Hsiao)

- *Notes from meeting on July 12, 2011**

2. Bay Area ITS Architecture 2011 Update* (Gould/Hewitt)

- *Information and Status Update*

3. RTP Update (Stanislaus)

4. Tech Transfer Seminar* (Stanislaus/Tabjulu)

- *Seminar on HCM 2010 & CA MUTCD 2011: Updates Relating to Arterials*

5. Program for Arterial System Synchronization (PASS)* (Tabjulu)

- *PASS FY 10/11 Cycle*
- *PASS FY 11/12 Cycle*

6. Bay Area Signalized Intersection System (BASIS) (Catanzaro)

- *Follow up from last meeting's discussion regarding a signal inventory for the Bay Area and data needs for planning/administrative purposes for the Arterial Operations Program*

7. New Business (All)

- *NCHRP Workshop*
- *Next AOC Meeting*

* Attachment in the packet

Next Meeting: Tue, Nov. 1, 2011 at 10 A.M., Room 171

OR

Tue, Nov. 15, 2011 at 10 A.M., Room 171

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Arterial Operations Committee

Notes from meeting on July 12, 2011

1. Introductions

All members introduced themselves. The meeting notes from May 10, 2011 were approved as written.

2. RTP Update

- Danielle Stanislaus said that MTC's new initiative One Bay Area provides one large grant to the Counties combining various programs like TLC, Bicycle, Local Streets & Roads, and Safe Routes to School. She said that FPI along with Arterial Ops will not be affected by this new initiative. She thanked the PASS consultants for their help in identifying the signal coordination needs along major arterials in the region. She also thanked local agency members for their willingness to support this funding request and participate in RTP meetings.

3. Tech Transfer Seminar

- Vamsi Tabjulu said that the Complete Streets seminar was held on Tue, June 28, 2011 and had record participation of over 140 attendees from various public and private agencies. The seminar started with an Overview of Complete Streets, which included presentations on Policies & Legislation, Plan Updates, Implementation, Evaluation Methods and Funding. The second half of the seminar included two presentations on local project examples. He thanked the speakers from various public and private agencies for participating in this seminar. He summarized the results from the 74 seminar evaluations: Over 56% rated the seminar Grade A; 36% rated it Grade B; and 8% rated it Grade C. The seminar content got an average rating of 4.26 points (max. 5 points), speakers received a rating of 4.22, and handouts/materials received a rating of 4.29. He said the feedback received will be helpful for planning successful future seminars.
- Danielle led the discussion to select the topic for the next tech transfer seminar. Chair Hsiao took a poll of the short-listed topics and concluded that the HCM 2010 & CA MUTCD 2011 Updates as the topic for the next seminar. Danielle said that MTC would present a draft outline for discussion at the next meeting.

4. Program for Arterial System Synchronization (PASS)

- Vamsi provided an update on the 13 projects in the PASS FY 10/11 Cycle. He said that nine projects have been completed and the remaining four projects are expected to be completed by the end of Aug/Sept. He presented the detailed project status and the summary table for this Cycle.
- He said that for the PASS FY 11/12 Cycle, MTC received 24 applications requesting funding for 424 traffic signals in eight counties. MTC, in partnership with Caltrans, reviewed and recommended 22 projects consisting of 350 signals. The Operations Committee, at its June 10, 2011 meeting, approved these recommendations. He said that considering the large number of PASS applications received and the limited funds available, MTC could not approve all corridors or services requested in the applications. He said that the project kick-off meetings with all stakeholders would be coordinated by the PASS consultants in July/August.

5. Bay Area Traffic Signal Database

- Danielle requested feedback from members on the usefulness of an online database of signalized intersections in the Bay Area for the inventory needs of local agencies. Several members from public agencies said they prefer to use their own methods to maintain their inventory, but were willing to provide data to MTC to establish an online database. She said that the primary purpose of this database is to have an inventory of traffic signal equipment in the Bay Area, which will be helpful in estimating the region's needs in future RTPs. Based on the discussion, she concluded that an online database with a graphic interface will be developed for internal use that can be shared with other agencies as needed. Wesley Catanzaro, the Arterial Ops Intern, gave a demonstration of the online 511 BikeMapper to give members a preview of the interface of the proposed signal database effort.

6. Adjournment: The meeting adjourned at 12:00 P.M.

Arterial Operations Committee
Attendees from meeting on July 12, 2011

#	Name	Agency	Phone No.	E-Mail
1	Aileen Cabico	URS	408.297.9585	Aileen_cabico@urscorp.com
2	Albert Yee	MTC	510.817.5770	ayee@mtc.ca.gov
3	Allen Nie	HMM	925.469.8016	allen.nie@hatchmott.com
4	Amanuel Haile	Marin Co	415.499.7137	ahaile@co.marin.ca.us
5	Anirban Pal	Kimley-Horn	925.543.0840	anirban.pal@kimley-horn.com
6	Brian Sowers	Kimley-Horn	925.398.4862	Brian.Sowers@kimley-horn.com
7	Dan Hennessey	Fehr & Peers	925.930.7100	d.hennessey@fehrandpeers.com
8	Danielle Stanislaus	MTC	510.817.5737	dstanislaus@mtc.ca.gov
9	David Huynh	Fremont	510.494.4484	dhuynh@ci.fremont.ca.us
10	David Kobayashi	VTA	408.321.5892	david.kobayashi@vta.org
11	David Mahama	TJKM	925.463.0611	dmahama@tjkm.com
12	Dean Hsiao	San Leandro	510.577.3410	dhsiao@ci.san-leandro.ca.us
13	Einar Acuna	Caltrans	510.622.5741	Einar_a_acuna@dot.ca.gov
14	John Rudolph	WCCTAC	510.215.3042	JohnR@ci.san-pablo.ca.us
15	Josh Peterman	Fehr & Peers	925.930.7100	j.peterman@fehrandpeers.com
16	Karl Petty	BTS	510.540.7647	karl@bt-systems.com
17	Laura Tang	HMM	530.220.5508	laura.tang@hatchmott.com
18	Nader Ebrahimi	Marin Co	415.499.3076	nebrahimi@co.marin.ca.us
19	Nora Chung	SCL County	408.494.1364	nora.chung@rdascgov.org
20	Rich Shinn	Iteris	925.872.0834	rjs@iteris.com
21	Shruti Malik	HMM	925.469.5373	shruti.malik@hatchmott.com
22	Simin Timuri	Walnut Creek	925.256.3529	timuri@walnut-creek.ca.us
23	Vamsi Tabjulu	MTC	510.817.5936	vtabjulu@mtc.ca.gov
24	Wesley Catanzaro	MTC	510.817.5609	wcatanzaro@mtc.ca.gov



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Memorandum

TO: Arterial Operations Committee

DATE: September 6, 2011

FR: Pierce Gould

W. I. 1223

RE: **Bay Area ITS Architecture 2011 Update - Information and Status Update**

MTC has hired Kimley-Horn & Associates, Inc. (KHA) to update the Bay Area ITS Architecture. The Bay Area ITS Architecture provides a framework for ITS planning that promotes interoperability and communication across jurisdictional boundaries. Projects developed under a regional framework extend the usefulness of any single project by making information easily accessible for operators and users of the system.

Agencies in the Bay Area that implement ITS projects using Federal transportation funds are required to be consistent with the Bay Area ITS Architecture (pursuant to 23 CFR 940.9 and 940.11). In addition, ITS projects must comply with system engineering requirements and applicable Federal standards. Resources and information about the existing Bay Area ITS Architecture are available at <http://www.mtc.ca.gov/planning/ITS/>.

2011 Update

Since the last update to the Bay Area ITS Architecture in 2007, several changes and events have transpired that provide the impetus for the update:

- Changes in local and regional projects (511, Clipper®, etc.);
- New projects that have not been previously addressed;
- New Transportation 2040 Goals; and
- Feedback from agencies that use the ITS Architecture.


A targeted outreach effort is underway to seek input from local and regional agencies, leads for regional ITS projects, and several other agencies to reach a cross-section of traffic and transit agencies throughout the region in an efficient and cost-effective manner. Agencies are being asked to review their projects and market package diagrams (high level diagrams that depict project data flows and connections). The draft 2011 Bay Area ITS Architecture will be viewable at the updated project web site beginning on September 12, 2011 at: <http://www.kimley-horn.com/Projects/mtcitsplan2011/Test/index.html>

Review of individual agency content can easily be conducted by searching by agency name at: http://www.kimley-horn.com/Projects/mtcitsplan2011/Test/how_do_I_find_project.html.

Comments will be accepted through October 7, 2011.

Please contact Melissa Hewitt, P.E., of KHA (310.344.8805 or melissa.hewitt@kimley-horn.com) or Pierce Gould of MTC (510.817.5863 or pgould@mtc.ca.gov) with questions.





Welcome

- Introductions
 - Pierce Gould, MTC
 - Melissa Hewitt, Kimley-Horn and Associates, Inc.
 - Arterial Operations Committee (AOC)

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Agenda

- Overview of the Bay Area ITS Architecture
- Use by project sponsors
- How to provide input
- Schedule

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Overview

- Meets federal requirements
- Regional ITS Architecture components:
 1. Description of the region
 2. Stakeholder information
 3. Roles and responsibilities
 4. Agreements
 5. Functional requirements
 6. Interfaces and data flows
 7. Standards to support interoperability
 8. Project sequencing

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Overview

Changes since 2007:

- Status of local projects
- Status of regional projects
- New(er) projects that were not previously addressed
- Transportation 2040 goals
- Feedback on the current web site

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Use by Project Sponsors

Using the Architecture:

- Maintain consistency with regional transportation objectives
- Support regional coordination and interoperability
- Meet FHWA /FTA requirements for federally funded projects
- Resource for project planning, development and implementation

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Providing Input

- Targeted outreach
 - Regional agencies
 - Leads for regional projects
- Individual input
 - Review project lists
 - Review market package diagrams
 - Submit updates

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Providing Input

<http://www.kimley-horn.com/Projects/mtcitsplan/Test/>

BAY AREA ITS ARCHITECTURE

HOME CONTACT US

ITS GOALS AND OBJECTIVES

INTRODUCTION

The 2007 Bay Area ITS Architecture is the blueprint for ITS project coordination and integration in the San Francisco Bay Area. The Architecture was prepared under the direction of the Metropolitan Transportation Commission (MTC) as an update to the 2004 version and based on current input from a broad range of stakeholders. Its purpose is to facilitate ITS planning and to aid in coordinated ITS project development, procurement, and delivery. The updated ITS Architecture is provided as a fully interactive, hyperlinked website for more convenient access and usability for project sponsors. This website satisfies federal requirements for Regional ITS Architecture development and maintenance.

ITS is the application of communication and computing technologies to improve transportation safety, operations, and efficiency. This definition encompasses a broad range of technologies and has created many opportunities for transportation professionals to respond proactively to increasing demand for effective transportation services. Many of these opportunities are predicated upon effective coordination between organizations, at both the institutional and technical level.

The Bay Area ITS Architecture is a blueprint created by stakeholders for stakeholders to emphasize the regional importance of having a well-planned, coordinated ITS infrastructure. One important element of ITS projects is the

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Providing Input

<http://www.consysfec.com/mtc/web/projects.htm>

Microsoft Internet Explorer provided by Kimley-Horn

File Edit View Favorites Tools Help

http://www.consysfec.com/mtc/web/projects.htm

ITS GOALS AND OBJECTIVES
BAY AREA BASICS
ITS USER NEEDS
STAKEHOLDER INFORMATION
FUNCTIONAL REQUIREMENTS
STANDARDS
USE AND MAINTENANCE
HOW DO I FIND MY PROJECT?
ARCHITECTURE DETAILS
HOW TO USE THIS SITE
SEND UPDATES

PROJECTS (BY SPONSOR)

Existing: Existing projects are projects currently in place and operating.
Ongoing: Ongoing projects are projects partly implemented with imminent or ongoing expansion, upgrades, or development.
Future: Future projects are proposed projects, which may or may not be programmed.

NIA - ITS projects that are not reflected in market package diagrams specifically. Primarily these projects are ITS in nature, but do not involve data exchange with other systems.

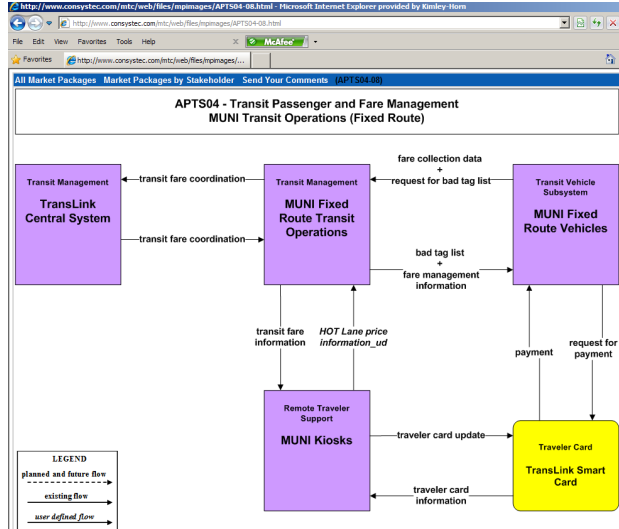
Stakeholder	Category	Project Name	Project Description	Project Status	ITS Service Diagram
AC Transit	Transit Information	Real-Time Passenger Seat Availability Information	System that identifies real-time vehicle occupancy	Future	APTS10-1
	Transit Management	Automated Passenger Counters (APC)	Passenger counting system on part of fleet	Existing	APTS10-1
	Transit Information	Fleetwide Automatic Vehicle Location (AVL) Systems	Transit vehicle automated location system	Ongoing	APTS01-1
	Transit Management	Automated Passenger Counter (APC) Upgrade/Expansion	Upgrade and expand automated passenger counting system to full fleet	Ongoing	APTS10-1
	Transit Management	Automated Bus Routing	Automated bus routing system to accommodate real time demand	Future	APTS03-1 APTS02-01
	Transit Management	Integrated Central Dispatch and Emergency Operations	Facility functions as an EOC during emergencies. Agencies would include any agencies that would utilize the EOC during emergencies.	Future	EM02-1 APTS02-01
	Transit Management	Next Generation On-Board Surveillance	Security surveillance system inside the vehicle	Future	APTS05-01

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Providing Input

<http://www.consysfec.com/mtc/web/projects.htm>



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Schedule

- Interim draft available now
- Input/review period – through Oct 7
- Updated project web site – Oct 28

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Questions and Comments

- Project web site:
<http://www.mtc.ca.gov/planning/ITS/>
- Submit project updates to:
bayarch.update@kimley-horn.com
- Questions or comments:

Melissa Hewitt, PE
melissa.hewitt@kimley-horn.com
310/344.8805

Pierce Gould
pgould@mtc.ca.gov
510/817.5863

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Memorandum

TO: Arterial Operations Committee

DATE: September 6, 2011

FR: Danielle Stanislaus, Vamsi Tabjulu

W. I.: 1234

RE: **Tech Transfer Seminar Program**

The Tech Transfer Program is an ongoing initiative under MTC's Arterial Operations Program, which supports efforts to improve the operations, safety, and management of the Bay Area's arterial network. Through the Tech Transfer Program, MTC provides seminars on a variety of topics of interest to local traffic engineers.

Seminar on "HCM 2010 and CA MUTCD 2011: Updates Relating to Arterials"

The AOC members, at their July 12, 2011 meeting, selected "The HCM 2010 and CA MUTCD 2011: Updates Relating to Arterials" as the topic for the next Tech Transfer seminar. MTC is planning to conduct this seminar during the first quarter of 2012. Since there have been extensive revisions to various chapters, this seminar will only highlight the updates affecting arterial operations. Based on the feedback from members, a draft outline will be developed and an outreach effort will be made to potential speakers for the seminar. Please see below for an initial draft of various updates in HCM 2010 and CA MUTCD 2011 relating to arterials.

HCM 2010 Updates

The HCM 2010 incorporates a number of major changes from the 2000 edition that are relevant to the analysis of the performance of arterials. The most prominent change is the integration of LOS evaluations for pedestrian, bicycle and transit modes within specific facility chapters, where appropriate. For non-automobile modes, LOS is calculated through traveler perception models (non-operational factors), and/or other operational factors. The following outlines the methodological changes by system element:

Multilane Highways

- Methodology for calculating bicycle LOS for Multilane highways.

Two-Lane highways

- Changes to automobile methodology. Two direction analyses have been dropped. Only one way is used. Two direction results are obtained by appropriate weighted averaging of the one-direction results.
- Key curves and tables in one-directional analyses have been adjusted and incorporated into the chapter.
- A bicycle LOS methodology for two lane highways has been added.

Urban Street Facilities

- New chapter which contains guidance for the analyst to determine the scope of an analysis (isolated intersection versus coordinated signal system), and the relevant travel modes.
- Generalized Daily Service Volumes for Urban Street Facilities are provided. These allow a means to assess a large number of urban streets in a region or jurisdiction to determine the need to be assessed more carefully.
- Methodology section describes how to aggregate results from the segment and point levels of analysis into an overall facility assessment.
- Information on the impact of Active Traffic Management measures on urban street performance has been added. References Chapter 35 for in-depth discussion.

Urban Street Segments

- Completely rewritten to incorporate the work of NCHRP 3-79 (Measuring and Predicting the Performance of Automobile Traffic on Urban Streets).
- Provides improved methods for estimating urban street free-flow speeds and running times, and a new method for estimating the stop rate along an urban street.
- Provides multimodal LOS methodology that can be used to evaluate tradeoffs in how urban street ROW is allocated among the modes using the street.

Signalized Intersection

- Revisions to the HCM2000 methodology include:
 - New incremental queue accumulation method has been added to calculate the $d1$ delay term and to $Q1$ length term. More flexible to nonideal cases, including coordinated arrivals and multiple green periods with differing saturation flow rates (i.e., protected-plus-permitted left turns and sneakers).
 - An actuated controller operation modeling procedure has been added.
 - A left turn lane overflow check procedure has been added.
 - Pedestrian and bicycle LOS methodologies relating to signalized intersections have been moved into the chapter.
- Methodology presented in Chapter 18 (Signalized Intersections) is for intersections with signals which operate in isolation from nearby intersections. Chapter 17 (Urban Street Segments) describes the methodology for evaluating an intersection that is part of a coordinated signal system.

Unsignalized intersections

- *Two-Way Stop-Controlled Intersections*
 - Two way stop controlled intersection methodology for autos is the same, except gap acceptance parameters for six-lane streets have been added.
 - Pedestrian and bicycle LOS methodologies relating to two way stop controlled intersection moved to this chapter.
- *All-Way Stop-Controlled Intersections*
 - Queue estimation model has been added.

- *Roundabouts*
 - Roundabout content from HCM 2000 has been replaced with new chapter based on NCHRP 3-65 project.
 - New methodologies for evaluating roundabout performance.
 - Automobile LOS table for roundabouts added.

CA MUTCD 2011 Updates

The CA MUTCD 2011 incorporates FHWA's Manual on Uniform Traffic Control Devices (2009 Edition) dated December 16, 2009 and the previous CA MUTCD dated January 21, 2010. These changes will go into effect on January 1, 2012, once the CA MUTCD 2011 is adopted. It also incorporates all policies and directives on traffic control devices issued by Caltrans that have been issued since January 21, 2010 and other editorial and formatting changes that were necessary to update the previous documents.

The CA MUTCD 2011 supersedes and replaces the previously adopted CA MUTCD (January 21, 2010) as well as Chapters 4, 5, 6, 8, 10, 11, 12, and the traffic signals portion of chapter 9 of the 1996 Caltrans Traffic Manual. Some of the topics that have been revised relating to signal timing are listed below:

- Pedestrian Walking Speed
- Minimum Bicycle Timing
- Yellow Change and Red Clearance Intervals
- Traffic Signal Design and Operations
- Signal Warrants
- Traffic Signal Development Procedures
- Preemption and Priority Control of Traffic Control Signals
- In-Roadway Warning Lights at Crosswalks



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Memorandum

TO: Arterial Operations Committee

DATE: September 6, 2011

FR: Vamsi Tabjulu

W. I. 1234

RE: **Program for Arterial System Synchronization (PASS)**

The purpose of the Program for Arterial System Synchronization (PASS) is to provide technical and financial assistance to Bay Area agencies to improve the safety and efficiency of the operations of certain traffic signal systems/corridors. The PASS provides traffic engineering assistance to local jurisdictions in retiming their traffic signals, including developing transit signal priority plans, incident management flush plans, traffic responsive timing plans, and establishing communication between state and local signals, among other eligible services. MTC will administer and manage this program, but the primary responsibility for the operation and retiming of traffic signals resides with the agency that owns them. The PASS guidelines and more information is available on the MTC Arterial Ops website at:
http://www.mtc.ca.gov/services/arterial_operations/

PASS FY 10/11 Cycle:

The PASS FY 10/11 Cycle has 13 projects involving over 346 signals, including 70 Caltrans signals. Nine of these projects have been completed and the Final Project Reports are being reviewed by all stakeholders for several projects. The final project evaluations are already scheduled for the Union City and Santa Rosa projects and these projects will be completed by the end of September. The Walnut Creek Phase III (Incident Management Plans) project and the Santa Clara County Group V projects will be completed in September and the final reports will be submitted immediately thereafter.

MTC has worked with all PASS Consultants to update the benefit-cost methodology used in this Cycle. This methodology allows for capturing the benefits of signal timing for transit in corridors with active bus routes. The format of the Final Project Report has been revised to include a quantitative summary of evaluation results as well as a qualitative summary of various benefits to pedestrians, bicyclists, side streets, and transit. A summary of evaluation results from all 13 projects in this Cycle will be presented to the AOC committee at its November meeting.

PASS FY 10/11 Cycle – Project Summary Table:

#	Project	Consultant	Deliverable ¹ Submitted	Current Status
1	Fremont, Caltrans	KHA	4B	Complete
2	San Leandro, Caltrans	KHA	4B	Complete
3	Redwood City, Caltrans	KHA	4B	Complete
4	Livermore	KHA	4B	Complete
5	SCL County - Group I-IV	KHA	4B	In Progress
	SCL County - Group V	KHA	4A	In Progress
6	Union City, Hayward, Caltrans	TJKM	4B	In Progress
7	Petaluma, Caltrans	TJKM	4B	Complete
8	Fairfield, Caltrans	TJKM	4B	Complete
9	South San Francisco, Caltrans	TJKM	4B	Complete
10	Santa Rosa, Caltrans	TJKM	4B	In Progress
11	Napa, Caltrans	TJKM	4B	Complete
12	Alameda, Caltrans	URS	4B	Complete
13	Walnut Creek, Caltrans - Phase I & II	URS	4B	Complete
	Walnut Creek, Caltrans - Phase III	URS	4A	In Progress

¹ 1B = Final Detailed Workscope Schedule and Budget (DWSB); 2A = Draft Existing Conditions Report; 2B = Final Existing Conditions Report; 3A = Draft Recommendations Report; 3B = Final Recommendations Report; 4A = Final Timing Sheets; 4B = Final Project Report with Benefit-cost Analysis (Project Completion)

PASS FY 11/12 Cycle:

MTC, in partnership with Caltrans, is currently coordinating with PASS consultants and stakeholders to complete the Kick-off meetings for all projects in this Cycle. The draft Workslope, Schedule, and Budgets (WSBs) are being reviewed for several projects. MTC plans to complete all the meetings by September and finalize the WSBs immediately thereafter. The finalized corridors, # of signals and project services for all projects will be reported in detail to the AOC at its November meeting. The current status of the Kick-off meetings for all projects is listed in the table below.

PASS FY 11/12 Cycle – Project Summary Table:

#	Sponsor Agencies	Consultant	# of Signals	Kick-off meeting
1	Berkeley	KHA	27	Completed
2	Livermore, Caltrans	KHA	7	Completed
3	San Rafael, Caltrans	KHA	77	Completed
4	San Ramon	KHA	14	Completed
5	Santa Clara County	KHA	29	Completed
6	City of Alameda, Caltrans	TJKM	8	Scheduled
7	Brentwood, CC County, Caltrans	TJKM	12	Scheduled
8	Marin County, Larkspur, Caltrans	TJKM	13	Completed
9	Mountain View, Caltrans	TJKM	7	Completed
10	City of Napa, Caltrans	TJKM	14	Scheduled
11	Oakland, Caltrans	TJKM	14	Completed
12	Petaluma, Caltrans	TJKM	14	Completed
13	San Leandro, Caltrans	TJKM	9	Completed
14	South SF, Caltrans	TJKM	8	Scheduled
15	Windsor, Caltrans	TJKM	4	Completed
16	Danville, CC County, Caltrans	URS	22	Completed
17	East Palo Alto, Menlo Park	URS	13	Completed
18	Menlo Park, Caltrans	URS	10	Completed
19	San Mateo County	URS	5	Completed
20	Fremont	URS	11	Completed
21	Santa Clara City, SCL County, Caltrans	URS	20	Completed
22	Suisun City, Fairfield, Caltrans	URS	13	Completed
Total Signals:			351	